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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/501,324	07/15/2004	Atsushi Miyasaka	Q82570	8173

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EXAMINER

MAKI, STEVEN D

ART UNIT	PAPER NUMBER
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1733

DATE MAILED: 11/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/501,324

Applicant(s)

MIYASAKA ET AL.

Examiner

Steven D. Maki

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 071504.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

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1) Figures 5-7 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2) The disclosure is objected to because of the following informalities: The specification makes numerous references to the claims. The "DISCLOSURE OF THE INVENTION" refers to the claims and "Table 1" refer to the claims. All references to the claims in the specification should be deleted.

Appropriate correction is required.

3) The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4) Claims 1-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is confusing since "each inclining groove extends from a tread end to a tire equatorial plane" (emphasis added) is inconsistent with "each inclining groove ... terminates near the zigzag circumferential groove without contacting therewith". In

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claim 1 line 14, it is suggested to change "to an equatorial plane" to --toward an equatorial plane--.

In claim 1 line 7, "zigzag stage" is ambiguous. In claim 1, it is suggested to change "zigzag stage" to --zigzag state--.

5) The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6) **Claims 1, 2, 4, 6, 7, 9-11, 15, 16, 19 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japan 715 (JP 11-291715) in view of Nakagawa et al (US 6,220,320) and Ikeda (US D288,196).**

Japan 715, directed to reducing heel and toe wear while exhibiting excellent wet and dry running performance, discloses a motorcycle tire having a tread comprising a circumferential groove 11 in a central region of the tread and inclined grooves 10 in side regions of the tread. The inclined grooves terminate without contacting the circumferential groove. The inner part 12 of the inclined groove 10 is inclined at angle α_1 of 0 to +35 degrees with respect to the circumferential direction. The intermediate part 13 of the inclined groove 10 is inclined at an angle α_2 of +30 to +100 degrees with respect to the circumferential direction. The outer part 14 of the inclined groove 10 is inclined at an angle α_3 of +90 to +130 degrees. In invention example 1 in Table 1, angle α_1 is 10 degrees, angle α_2 is 50 degrees and angle α_3 is 110 degrees. As a variant, Japan 715 teaches that circumferential

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groove 11 may be omitted. See paragraph 28 of the machine translation for Japan 715.

Since Japan 715's tire is a pneumatic motorcycle tire having a curved tread surface as shown in figure 1, Japan 715's tread has an "a tread surface portion whose external surface curvature is comparatively large". Japan 715 does not recite providing the central region of the tread with a pair of circumferential grooves having a zigzag circumferential rib there between.

As to claim 1, it would have been obvious to one of ordinary skill in the art to provide the central region of the tread of Japan 715's motorcycle tire with a pair of zigzag circumferential grooves having a zigzag circumferential rib there between since:

(1) Japan 715 teaches that the central region of the tread of the motorcycle tire may have a **circumferential groove**;

(2) Nakagawa et al, also directed to a motorcycle tire, suggests using **at least one circumferential groove, which may be zigzag or linear, in the central region of a tread of a motorcycle tire** to lower the stiffness of the central region of the ground contact area to improve lateral stiffness and thereby *improve steering stability*; and

(3) Ikeda, also directed to a motorcycle tire, suggests providing the central region of a tread of a motorcycle tire with a **pair of zigzag circumferential grooves having a zigzag circumferential rib there between** (title, figure 1, figure 2).

Hence, Japan 715, Nakagawa et al and Ikeda teach a motorcycle tire having a circumferential groove in a central region thereof. Nakagawa et al suggests using at least one circumferential groove in a motorcycle tire tread and therefore suggests using either one or two circumferential grooves in a motorcycle tire tread. Nakagawa et al

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also teaches providing the circumferential grooves(s) in the motorcycle tire tread with either a zigzag shape or a linear shape. In figure 1, Nakagawa et al shows a main portion of a sharp inclined groove segment inclined in the same direction as a segment of the zigzag circumferential groove. Ikeda specifically shows using both a pair of circumferential grooves and a zigzag shape for the circumferential grooves in a tread of a motorcycle tire. In light of the teachings in Nakagawa et al and Ikeda, one of ordinary skill in the art would have been taught that the use of two zigzag circumferential grooves (and the zigzag rib there between) in a motorcycle tire as being an obvious alternative to the use of one straight circumferential groove. Moreover, one of ordinary skill in the art would have been particularly motivated to use a pair of circumferential grooves instead of only one circumferential grooves *in order to improve drainage* since Japan 715 and Nakagawa et al recognize that grooves in a tread of a motorcycle tire function to drain water. Nakagawa et al adds to the disclosure of Japan 715 by suggesting (1) using a pair of circumferential grooves as an alternative to one circumferential groove and (2) using a zigzag shape as an alternative to a linear shape for a circumferential groove. Ikeda illustrates the tread of a motorcycle tire as comprising the combination of (1) a pair of circumferential grooves and (2) a zigzag shape for the circumferential grooves.

With respect to the inclining groove having "a sharp inclining groove portion ... whose angle with respect to the tire circumferential direction is within a range of 0 to 20 degrees", Japan 715 discloses the inclined groove 10 having an inner part 12 (part of "a

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sharp inclining groove portion") inclined at an angle θ_1 of 0 to +35 degrees with respect to the circumferential direction.

With respect to the inclining groove having "a loose inclining groove portion ... whose angle with respect to a tire circumferential direction is set larger than the angle of the sharp inclining portion", Japan 715 discloses the inclined groove 10 having outer part 14 (part of "a loose inclining portion") inclined at angle θ_3 wherein angle θ_3 is larger than angle θ_1 .

With respect to the first and second land portions, it would have been obvious to one of ordinary skill in the art to provide the inclined grooves 10 such that first longitudinal lands have substantially uniform width and second longitudinal lands have a width which gradually increases are formed since (1) Japan 715 shows the "sharp inclining groove portions" of adjacent inclined grooves 10 as overlapping each other (figure 2), (2) Japan 715 teaches inclining a main portion (inclined part 12) of the "sharp inclining groove portion" " at an angle θ_1 of 0-35 degrees; a "first longitudinal land portion" between (a) the main portion (inclined part 12) of the "sharp inclining groove portion" of the inclined groove and (b) the circumferential groove thereby being *at least generally uniform* and (3) Japan 715 teaches inclining a minor portion of the "sharp inclining groove portion" at a larger angle α_2 ; the longitudinal land portion between the remaining portion of the "sharp inclining groove portion" of the inclined groove and the circumferential groove thereby *gradually increasing in width*.

As to claim 2, it would have been obvious to define Japan 715's tread surface using a radius less than 250 mm since Japan 715 teaches that the tire is a motorcycle tire having a highly curved tread surface (figure 1, abstract).

As to claim 4, the first longitudinal land portion between inclined groove part 12 and the circumferential groove is the longer of the first and second longitudinal land portions.

As to claims 6 and 7, Japan 715 teaches using auxiliary grooves 10B.

As to claim 9, Japan 715 teaches an angle θ_3 of +90 to +130 degrees.

As to claim 10, Japan 715 teaches forming the respective land portions with the same width.

As to claim 11, Japan 715 teaches connecting the inclined parts 12, 13 and 14 together to form the inclined groove 10, which may be curved.

As to claim 15, the claimed width of the ends of the first and second lands would have been obvious in view of (1) Japan 715's teaching to overlap the inclined grooves 10A, which (a) have varying inclination with respect to the circumferential direction and (b) terminate without contacting the circumferential groove and (2) the suggestion from Nakagawa et al and Ikeda to use a pair of zigzag circumferential grooves in Japan 715's tread.

As to claim 16, the claimed amplitude of the groove being 30-150% of the width of the rib would have been obvious in view of the suggestion from Nakagawa et al and Ikeda to use a pair of zigzag grooves with a zigzag rib there between in the central region of Japan 715's tread.

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As to claim 19, it would have been obvious to provide Japan 715's tread with the claimed ratios of radius to tire max width since Japan 715 teaches that the tire is a motorcycle tire having a highly curved tread surface (figure 1, abstract).

As to claim 22, Japan 715 teaches using a radial tire construction for the motorcycle tire.

7) Claims 3, 8, 14, 17, 18 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japan 715 in view of Nakagawa et al and Ikeda as applied above and further in view of Japan 909 (JP 6-55909).

As to claims 3, 8, 14 and 17, it would have been obvious to one of ordinary skill in the art to provide Japan 715's tire such that the circumferential grooves have the claimed amplitude with respect to the claimed road contact width and wavelength with respect to the claimed road contact length (claim 3), the rib has the claimed width with respect to the road contact width (claim 8), the pitch between the grooves at the tread end is 20-50% of the road contact length (claim 14), the road contact shape is an ellipse with the specified length (claim 17) in view of (1) the suggestion from Nakagawa et al and Ikeda to provide the central region of the tread of Japan 715's motorcycle tire, which has inclined grooves, with a pair of zigzag circumferential grooves and (2) Japan 909's disclosure of a motorcycle tire having an elongated narrow width road contact area 4 (figure 1).

As to claim 18, it would have been obvious to provide Japan 715's motorcycle tread having the pair of zigzag circumferential grooves with the claimed negative rate

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(groove area / total tread area) in view of Japan 909's suggestion to provide a motorcycle tread with a ratio of groove area / land area of 0.25 to 0.40.

As to claim 21, Japan 909 suggests using substantially the same groove depths for grooves in a central region of a motorcycle tread (figure 2, paragraph 23 of machine translation).

8) Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Japan 715 in view of Nakagawa et al and Ikeda as applied above and further in view of Europe 553 (EP 368553).

As to claim 20, it would have been obvious to one of ordinary skill to provide the inclined groove 10 in the tread of Japan 715's motorcycle tire such that the groove walls of the inclined groove are inclined at 0-45 degrees with respect to the normal to the tread surface and the angle of the stamping in side groove wall is smaller than the angle of the kick-out side groove wall since Europe 553, also directed to a motorcycle tire having inclined grooves, suggests inclining one groove wall at an angle γ_a of 3-10 degrees and inclining the other groove wall at an angle γ_b of 10 to 20 degrees to prevent uneven wear and improve drainage (figure 5).

Allowable Subject Matter

9) Claims 5, 12 and 13 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

As to claim 5, the prior art fails to suggest phase differences in opposite directions as in this claim in combination with the subject matter of claim 1. Japan 715

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teaches a phase difference between the inclining grooves 10A as in shown in figure 2.

However, the inclining grooves 10A have the same length.

As to claim 12, the prior art fails to suggest the length of the inclining groove forming the first land being 105-120% the length of the inclining groove forming the second land portion in combination with the subject matter of claim 1. Japan 715's inclining grooves 10A have the same length.

As to claim 13, the prior art fails to suggest the width of the inclining grooves being 60-80% of the width of the circumferential grooves in combination with the subject matter of claim 1. In figure 1, the circumferential groove 11 of Japan 715 is shown as having a smaller width instead of a larger width than the inclined grooves 10A.

Remarks

10) The references crossed off the PTO 1449 are cited on the PTO 892.

The remaining references are of interest.


11) Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven D. Maki whose telephone number is (571) 272-1221. The examiner can normally be reached on Mon. - Fri. 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Steven D. Maki
November 12, 2006


STEVEN D. MAKI
PRIMARY EXAMINER
11-12-06